

WHAT IS CLAIMED IS:

- 5                   1. An adjustable cam shaft, comprising:  
an elongated shaft;  
a first cam lobe carried by the shaft; and  
a second cam lobe carried by the shaft;  
wherein the first and second cam lobes are selectively rotatable  
relative to one another and selectively locked in place relative to one another,  
10                   whereby a displacement angle between the cam lobes can be selectively  
adjusted.
- 15                   2. The adjustable cam shaft of claim 1, including a drive/ timing  
gear assembly carried by the shaft and associated with the first and second  
cam lobes.
- 20                   3. The adjustable cam shaft of claim 2, wherein the drive/timing  
gear assembly includes a gear and a hub fastened to one another.
- 25                   4. The cam shaft of claim 1, wherein either the first or second cam  
lobe comprises an intake cam lobe associated with an intake valve of an  
engine, and the other cam lobe comprises an exhaust lobe associated with  
an exhaust valve of an engine.
- 30                   5. The cam shaft of claim 1, including indicia associated with each  
of the first and second cam lobes for determining the displacement angle of  
the cam lobes.
6. The adjustable cam shaft of claim 1, including means for locking  
the first and second cam lobes to the shaft.

7. The adjustable cam shaft of claim 6, wherein the locking means comprises a locking nut threadedly received onto the shaft.

5 8. The adjustable cam shaft of claim 7, wherein the shaft includes an externally threaded portion for receiving the locking nut, and a shoulder on an opposite end thereof, whereby as the locking nut is tightened onto the shaft, the shoulder compresses the first and second cam lobes against a drive/gear assembly so as to lock the first and second cam lobes relative to one another.

10 9. The adjustable cam shaft of claim 8, including a pin insertable through a drive/gear assembly and into either the first or second cam lobe for setting the position of the first or second cam lobe relative to the drive/gear assembly.

15 10. The adjustable cam shaft of claim 6, including an inner shaft extending through the elongated shaft for attachment to an engine block.

20 11. The adjustable cam shaft of claim 1, wherein the elongated shaft comprises first and second shaft sections, the first cam lobe extending from the first shaft section, and the second cam lobe extending from the second shaft section, and wherein the shaft sections are rotatably associated with one another and selectively locked in place relative to one another.

25 12. The cam shaft of claim 11, wherein the first shaft section includes a shaft extending therefrom, and the second shaft section includes a hollow sleeve extending therefrom and configured to accept the shaft therein.

30 13. The cam shaft of claim 11, including means for locking the first and second shaft sections relative to one another.

14. The adjustable cam shaft of claim 13, wherein the locking means comprises a fastener attachable to the first and second shaft sections.

5 15. The cam shaft of claim 14, wherein the first and second shaft sections include hollow, internally threaded portions that receive the fastener.

10 16. An adjustable cam shaft, comprising:  
a first shaft section having a cam lobe extending therefrom;  
a second shaft section having a cam lobe extending therefrom; and  
means for locking the first and second shaft sections relative to one another;

15 wherein either the first or second cam lobe comprises an intake cam lobe associated with an intake valve of an engine, and the other cam lobe comprises an exhaust lobe associated with an exhaust valve of an engine;  
and

20 wherein the first and second shafts are selectively rotatable relative to one another and selectively locked in place relative to one another, whereby a displacement angle between the cam lobes can be selectively adjusted.

25 17. The adjustable cam shaft of claim 16, including a drive/timing gear assembly comprising a gear and a hub attached to either the first or second shaft section.

30 18. The cam shaft of claim 16, including indicia associated with each of the first and second shaft sections for determining the displacement angle of the cam lobes.

19. The cam shaft of claim 16, wherein the first shaft section includes a shaft extending therefrom, and the second shaft section includes a hollow sleeve extending therefrom and configured to accept the shaft therein.

20. The adjustable cam shaft of claim 16, wherein the first and second shaft sections include hollow, internally threaded portions, and wherein the locking means comprises a fastener received within the first and second shaft sections.

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21. An adjustable cam shaft, comprising:

an elongated shaft;

a first cam lobe carried by the shaft;

a second cam lobe carried by the shaft; and

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means for locking the first and second cam lobes to the shaft;

wherein either the first or second cam lobe comprises an intake cam lobe associated with an intake valve of an engine, and the other cam lobe comprises an exhaust lobe associated with an exhaust valve of an engine; and

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wherein the first and second cam lobes are selectively rotatable relative to one another and selectively locked in place relative to one another, whereby a displacement angle between the cam lobes can be selectively adjusted.

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22. The adjustable cam shaft of claim 21, including a drive/ timing gear assembly comprising a gear and hub carried by the shaft and associated with the first and second cam lobes.

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23. The cam shaft of claim 21, including indicia associated with each of the first and second cam lobes for determining the displacement angle of the cam lobes.

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24. The adjustable cam shaft of claim 21, wherein the locking means comprises a locking nut threadedly received onto the shaft.

25. The adjustable cam shaft of claim 24, wherein the shaft includes an externally threaded portion for receiving the locking nut, and a shoulder on an opposite end thereof, whereby as the locking nut is tightened onto the shaft, the shoulder compresses the first and second cam lobes against a drive/gear assembly so as to lock the first and second cam lobes relative to one another.

26. The adjustable cam shaft of claim 25, including a pin insertable through a drive/gear assembly and into either the first or second cam lobe for setting the position of the first or second cam lobe relative to the drive/gear assembly.

27. The adjustable cam shaft of claim 21, including an inner shaft extending through the elongated shaft for attachment to an engine block.